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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,634	11/13/2003	Kazuhisa Yamamoto	SNK-3750US6	2125
23122	7590	05/18/2007	EXAMINER	
RATNERPRESTIA			NGUYEN, DUNG T	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/712,634	Applicant(s) YAMAMOTO ET AL.	
	Examiner Dung (Michael) T. Nguyen	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 80 and 82-84 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 80,82-84 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner:
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                               | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                      | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

### **DETAILED ACTION**

Based on the RCE filed on 12/28/06, the Advisory Action sent on 01/05/07 is hereby withdrawn.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 80 and 82-84 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The subject matter of “the single mode fiber is configured to prevent a variation in temperature of the wavelength conversion element caused by a heat generated from the semiconductor laser” is not described in the specification. Additionally, it is not clear how the fiber configuration would prevent the limitation as claimed.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 80 and 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Byer et al. (5036220) in view of Tanabe (5119361).

With respect to claim 80, Byer et al. show in Fig.1 a solid state laser crystal (12) (column 4, lines 3-5) generating a fundamental wave; and a bulk type (mass material from Webster's dictionary) optical wavelength conversion element (11) for receiving the fundamental wave and generating a harmonic wave (column 6, lines 4-5), the optical wavelength conversion element having periodic domain inverted structures (column 5, lines 15-49).

Byer et al. lack a semiconductor laser for emitting a pumped light and a fiber for conveying the pumped light to the solid state laser crystal and wherein the fiber is configured to prevent a variation in temperature of the optical wavelength conversion element caused by a heat generated from the semiconductor laser.

Tanabe teaches in Fig.3-4 a semiconductor laser (20) for emitting a pumped light and a fiber (12) for conveying the pumped light and wherein the fiber is configured to prevent a variation in temperature of the optical wavelength conversion element caused by a heat generated from the semiconductor laser (As indicated in the instant application on page 55, l.15-19 to prevent temperature variation by remotely disposing the wavelength conversion element away from the heat generated by the semiconductor laser, Byer et al. teach exactly that feature in Fig.1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Byer et al. what is taught by Tanabe in order to pump (excite) the solid state laser crystal for generating a fundamental wavelength (column 4, lines 38-41 and 54-57).

With respect to claim 82, Byer et al. disclose the optical wavelength conversion element (11) is formed in a  $\text{LiNb.sub}x.\text{Ta.sub}1-x.\text{O.sub}3$ . ( $0 \leq x \leq 1$ ) substrate (14) (the examiner selects  $x = 1$  and therefore  $\text{LiNb.sub}x.\text{Ta.sub}1-x.\text{O.sub}3$ . becomes  $\text{LiNbO.sub}3$ ) (column 4, lines 16-17).

Claim 83 is rejected under 35 U.S.C. 103(a) as being unpatentable over Byer et al. (5036220) in view of Tanabe (5119361), and further in view Hanihara (5430756).

With respect to claim 83, Byer et al. and Tanabe disclose all limitations of the claim 80 except for the solid state laser crystal and the optical wavelength conversion element are integrated together.

Hanihara teaches in Fig. 1 the solid state laser crystal (3) and the optical wavelength conversion element (4) are integrated together.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Byer et al. and Tanabe what is taught by Hanihara in order to avoid an alignment of optical parts (between the solid state laser crystal and the optical wavelength conversion element) and to make the length of the laser resonator short (column 2, lines 38-46).

Claim 84 is rejected under 35 U.S.C. 103(a) as being unpatentable over Byer et al. (5036220) in view of Tanabe (5119361), and further in view of Covey (4919506).

With respect to claim 84, Byer et al. show in Fig.1 a solid state laser crystal (12) (column 4, lines 3-5) generating a fundamental wave; a fiber (17) for conveying the fundamental wave; and an optical wavelength conversion element (11) for receiving the fundamental wave and generating a harmonic wave (column 6, lines 4-5), the optical wavelength conversion element having periodic domain inverted structures (column 5, lines 15-49).

Byer et al. lack a semiconductor laser for emitting a pumped light and a fiber for conveying the pumped light to the solid state laser crystal and wherein the fiber is configured to prevent a variation in temperature of the optical wavelength conversion element caused by a heat generated from the semiconductor laser.

Tanabe teaches a semiconductor laser (20) for emitting a pumped light (column 5, lines 20-22) and wherein the fiber is configured to prevent a variation in temperature of the optical wavelength conversion element caused by a heat generated from the semiconductor laser (As indicated in the instant application on page 55, l.15-19 to prevent temperature variation by remotely disposing the wavelength conversion element away from the heat generated by the semiconductor laser, Byer et al. teach exactly that feature in Fig.1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Byer et al. what is taught by Tanabe in order to pump (excite) the solid state laser crystal for generating a fundamental wavelength (column 4, lines 38-41 and 54-57).

However, Byer et al. and Tanabe lack a single mode fiber for conveying the fundamental from the solid state laser.

Covey teaches a single mode fiber for conveying the fundamental from the solid state laser (column 1, lines 20-21).


It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Byer et al. and Tanabe what is taught by Covey to eliminate or reduce velocity dispersion in the propagated light signal and hence to obtain an efficient laser light coupling (column 1, lines 14-17 and 20-22).

### Communication Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung (Michael) T Nguyen whose telephone number is (571) 272-1949. The examiner can normally be reached on 8:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Min Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.

  
Michael Dung Nguyen  
5/04/07